AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A ~~M~~method of manufacturing a container from plastic material, the method comprising:

thermally conditioning at least certain areas of a preform of the container so that the temperature of said areas exceeds a~~the~~ glass transition temperature of their constituent material,

injecting a fluid into the preform to cause an~~its~~ expansion of the preform in order to form ~~it into~~ a container,

performing a free expansion outside of a mold, of at least some of the areas of the preform, and

controlling at least one injection parameter of the fluid in order to produce a~~the~~ final container,

wherein the at least one injection parameter of the fluid is controlled so that a final internal volume of the container falls within predetermined limits with respect to a reference volume.

2. (canceled).

3. (currently amended): The ~~M~~method according to claim 1, wherein the~~it comprises controlling~~ at least one injection parameter of the fluid is controlled based on~~by taking into account~~ the temperature of said areas of the preform.

4. (currently amended): The ~~M~~method according to claim 1, wherein the at least one ~~controlled~~injection parameter is a~~the~~ pressure of the fluid injected into the preform.

5. (currently amended): The ~~M~~method according to ~~-~~claim 1, wherein the at least one injection~~controlled~~ parameter is the flow rate of the fluid injected into the preform.

6. (currently amended): The ~~M~~method according to claim 4, wherein the pressure is varied~~able~~ during injection.

7. (currently amended): The ~~M~~method according to claim 6, wherein the pressure is varied such that an initial ~~it comprises beginning the injection with a flow rate and/or a~~ pressure ~~that~~ is more than a~~the~~ pressure at the end of the injection, and ~~in that the flow rate and/or~~ the initial pressure ~~and initial fluid flow rate are controlled~~is set in order to prevent the constituent material of the preform~~, thus that of the container,~~ from solidifying before obtaining a~~the~~ final desired expansion, and the pressure at the end of injection is reduced below the initial pressure to prevent the constituent material from bursting.

8. (currently amended): The ~~M~~method according to claim 1, wherein one controlled injection parameter is a~~the~~ temperature of the fluid.

9. (currently amended): The ~~M~~method according to claim 1, wherein ~~it comprises controlling~~ the at least one injection parameters of the fluid is controlled so that the expansion is

stopped naturally by the solidifying of the constituent material of the preform ~~when the expansion becomes significant,~~ so that when the constituent material is solidified ~~the~~ reaction forces exerted by the ~~solidifying~~solidified constituent material are opposite to those exerted by the fluid.

10. (currently amended): The ~~M~~method according to claim 12, wherein ~~it comprises controlling~~ the at least one injection parameters of the fluid so that expansion is naturally stopped by solidifying the constituent material of the preform when the expansion is such that the final internal volume of the container falls within predetermined limits with respect to a reference volume, and~~so that~~ when the material is solidified the reaction forces exerted by the ~~solidifying~~solidified constituent material are opposite to those exerted by the fluid.

11. (currently amended): The ~~M~~method according to ~~-~~claim 1, wherein ~~it consists of comprises stopping~~the injecting of the fluid is stopped~~injection~~ after a predetermined time.

12. (currently amended): The ~~M~~method according ~~-~~claim 1, wherein the fluid is a gas.

13. (currently amended): The ~~M~~method according to claim 12, ~~wherein, because the container is intended to be filled by means of a liquid after it is manufactured, it comprises~~further comprising:

~~- first causing the expansion of the preform;~~

~~. then, while~~after performing a free expansion of the preform, maintaining a residual pressure of the gas inside the container ~~when it is formed~~, and ~~immediately~~ filling the container with a liquid under a gas pressure at least equal to the residual pressure in the container.

14. (currently amended): The ~~M~~method according to claim 13, wherein performing the free expansion ~~it~~ comprises first sealably isolating the interior of the preform from the exterior environment by~~:~~ ~~in~~ placing the interior of the preform in communication with a source of gas under pressure ~~for pressurizing the container~~fill liquid, ~~in order~~ to cause the expansion of the preform using~~by means of~~ said source, wherein said source is used for generating said pressure applied on the fill liquid in order to fill the container with a liquid gas pressure at least equal to the residual pressure in the container ~~:~~.

wherein the maintaining the pressure of the gas and filling the container ~~comrises~~ comprises~~then~~, when the expansion is completed, ~~while~~ maintaining the isolation from the exterior and the communication between the interior of the preform with the source of gas, and~~of~~ causing the filling of the container thus formed with the liquid under pressure.

15. (currently amended): The ~~M~~method according to claim 12, wherein the gas is compressed air.

16. (currently amended): The ~~M~~method according to claim 1, wherein the fluid is a liquid.

17. (currently amended): The ~~M~~method according to claim 16, wherein, because the container is intended to be filled by means of a liquid, it comprises using said liquid to cause the expansion of the preform in order to make it into a container, during the filling phase of the container which thus constitutes its manufacturing phase.

18. (currently amended): The ~~M~~method according to claim 17, wherein the liquid is hot.

19. (currently amended): The ~~M~~method according to claim 1, wherein the performing the free expansion ~~it~~ comprises introducing a predetermined volume of fluid into a compartment, placing the compartment in sealed communication with the preform, and transferring the fluid from the compartment to the preform, while controlling at least one transfer parameter of said fluid outside the compartment to allow the expansion of the preform and its transformation into a final container.

20. (currently amended): The ~~M~~method according to claim 1, ~~wherein, to vary~~ the shape of the container is varied~~s from one manufacturing to another, it comprises~~ by modifying the heating profile of said areas of preforms of the containers during ~~their~~the thermal conditioning.

21. (currently amended): The ~~M~~method according to claim 1, wherein it includes the step of producing a base area on the container, in a step consecutive to their formation, by

causing pressure between the area of the container at the location where the base area should be produced and an exterior pressing surface.

22. (currently amended): A Ssystem of manufacturing containers comprising:

a unit for thermally conditioning at least a preform; ~~and~~

an expansion unit with at least an expansion device of the said at least thea preform, which expansion devices is associated with a source of fluid to cause the expansion of the preform by injection of said fluid; ~~, and it has means for sealably~~

an isolating component that seals the interior of the preform from the exterior environment; ~~, and~~

a connecting component that ~~means for~~ places ~~ing~~ the interior of the preform in communication with said source of fluid to cause the expansion of the preform whereine ~~characterized in that~~ the expansion unit is a free expansion unit of at least certain of said areas of the preform; ~~,~~ and

~~that it has~~ a control unit for controlling at least one injection parameter of the fluid in order to control the expansion of the preform to produce the final container,

wherein the at least one injection parameter of the fluid is controlled so that a final internal volume of the container falls within predetermined limits with respect to a reference volume.

23. (currently amended): A Ssystem according to claim 22, further comprising:

a temperature measurement unit which measures a temperature of the preform,

wherein ~~it has~~ the control unit controls the at least one injection parameter based on~~is associated with means for measuring~~ the~~a~~ temperature at least one area of ~~at least one area of~~ the preform~~, and the means for controlling at least one injection parameter of the fluid are devised so as to effect this control as a function of the result of the temperature measurement of the preform~~.

24. (currently amended): A S~~s~~ystem according to claim 22, wherein the control unit is associated with a pressure controller that~~means for~~ control~~sling~~ the pressure of the fluid injected into the preform.

25. (currently amended): A S~~s~~ystem according to claim 24, wherein the pressure controller~~means for controlling the pressure of the fluid injected into the preform are devised to~~ varies~~y~~ the pressure of the fluid during the injection.

26. (currently amended): A S~~s~~ystem according to claim 22, wherein the control unit is associated with a flow rate controller that ~~means for~~ control~~sling~~ the flow rate of the fluid injected into the preform.

27. (currently amended): A S~~s~~ystem according to claim 22, wherein the control unit is associated with a temperature controller that~~means for~~ control~~sling~~ the temperature of the fluid.

28. (currently amended): A S~~s~~ystem according to claim 22, wherein the control unit ~~is associated with means for~~ control~~sling~~ a~~the~~ duration of injection of the fluid.

29. (currently amended): A ~~S~~system according to claim 22, further comprising~~wherein, because the container is intended to be filled with a liquid after it is manufactured, and the fluid used for the expansion is a gas, it includes~~ a means for maintaining a residual pressure of gas inside the container when it is formed, and for immediately filling the container with a liquid under pressure of gas at least equal to the residual pressure in the container.

30. (currently amended): A ~~S~~system according to claim 29, further comprising~~wherein it includes~~:

a tank of pressurized fill liquid~~;~~;

a source of gas for pressurizing the tank~~;~~; ~~and~~

means for placing the interior of the preform in communication with said source of pressurized gas~~, in order~~ to cause the expansion of the preform by ~~means of~~ said source~~;~~; and

means, when the expansion is complete, of maintaining isolation from the exterior and communication between the interior of the preform and the source of gas for~~, and causing the~~ filling of the container thus formed.

31. (currently amended): A s~~S~~ystem according to claim 22, wherein~~, because the container is intended to be filled with a liquid from a filling unit,~~ the expansion unit includes~~is composed of the~~ a filling unit to fill the container after the expansion and the control unit is associated with means for controlling the pressure of a~~the~~ fill liquid.

32. (currently amended): A ~~S~~system according to claim 22, wherein a~~the~~ source of fluid for causing the expansion comprises~~is composed of~~ a compartment containing a volume of fluid at least equal to the desired volume for the final container, and the~~a~~ control unit is associated with means for transferring the fluid contained in the compartment to the preform and means for controlling at least one transfer parameter of said fluid outside the compartment such that~~in order to allow~~ the final container expands to ~~have~~ a predetermined volume.

33. (currently amended): A ~~S~~system according to claim 22, wherein the thermal conditioning unit has means for preselecting the heating profile the profile of the preform.